

Claims

We claim:

1. A wavelength selective switch comprising:

an input waveguide for carrying an optical signal having a wavelength λ_i ;

5 an output waveguide having a Bragg grating adapted for coupling said wavelength λ_i into said output waveguide, said output waveguide disposed proximate to said input waveguide such that coupling of said wavelength λ_i may occur in a coupling zone; and

10 a heater element that can selectively provide thermal energy to said coupling zone such that said Bragg grating does not couple said wavelength λ_i .

2. The switch of Claim 1 wherein said heater element is a resistive heater.

15 3. The switch of Claim 1 wherein said input waveguide carries a plurality of wavelengths in addition to said wavelength λ_i and further wherein said heater element can selectively deliver thermal energy to said coupling zone so as to selectively cause said Bragg grating to couple one of said plurality of wavelengths.

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4. A wavelength selective switch comprising:

an input waveguide for carrying an optical signal having a wavelength λ_i ;

an output waveguide having a Bragg grating adapted for coupling said wavelength λ_i into said output waveguide, said output waveguide disposed proximate to said input waveguide such that coupling of said wavelength λ_i may occur in a coupling zone; and

5 means for heating that can selectively provide thermal energy to said coupling zone such that said Bragg grating does not couple said wavelength λ_i .

5. The switch of Claim 4 wherein said means for heating is a resistive heater.

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6. The switch of Claim 4 wherein said input waveguide carries a plurality of wavelengths in addition to said wavelength λ_i and further wherein said means for heating can selectively deliver thermal energy to said coupling zone so as to selectively cause said Bragg grating to couple one of said plurality of wavelengths.

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7. A wavelength selective switch comprising:

an input waveguide for carrying an optical signal having a wavelength λ_i ;

an output waveguide having a Bragg grating adapted for coupling said wavelength λ_i into said output waveguide, said output waveguide disposed proximate to said input waveguide such that coupling of said wavelength λ_i may occur in a coupling zone; and

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a cooling element that can selectively provide cooling to said coupling zone such that said Bragg grating does not couple said wavelength λ_i .

5 8. The switch of Claim 7 wherein said input waveguide carries a plurality of wavelengths in addition to said wavelength λ_i and further wherein said cooling element can selectively cool said coupling zone so as to selectively cause said Bragg grating to couple one of said plurality of wavelengths.

10 9. A wavelength selective switch comprising:
an input waveguide for carrying an optical signal having a wavelength λ_i ;
an output waveguide having a Bragg grating and disposed proximate to said input waveguide in a coupling zone, said Bragg grating not coupling said wavelength λ_i ; and

15 a heater element that can selectively provide thermal energy to said coupling zone such that said Bragg grating couples said wavelength λ_i .

10. The switch of Claim 9 wherein said heater element is a resistive heater.

20 11. A wavelength selective switch comprising:
an input waveguide for carrying an optical signal having a wavelength λ_i ;

an output waveguide having a Bragg grating and disposed proximate to said input waveguide in a coupling zone, said Bragg grating not coupling said wavelength λ_i ; and

5 a cooling element that can cool said coupling zone such that said Bragg grating couples said wavelength λ_i .

12. A wavelength-selective switch comprising:

an input waveguide extending over a first direction and carrying an optical signal of wavelength λ_i ;

10 an output waveguide intersecting with said input waveguide at an intersection;

a bridge waveguide switch disposed on said intersection, said bridge waveguide having a Bragg grating adapted for coupling said wavelength λ_i ; and

15 a heater element that can selectively provide thermal energy to said intersection such that said Bragg grating does not couple said wavelength λ_i .

13. The switch of Claim 12 wherein said input waveguide and said output waveguide are substantially perpendicular to each other.

20 14. A wavelength-selective switch comprising:

an input waveguide extending over a first direction and carrying an optical signal of wavelength λ_i ;

an output waveguide intersecting with said input waveguide at an intersection;

a bridge waveguide switch disposed on said intersection, said bridge waveguide having a Bragg grating adapted for coupling said wavelength λ_i ; and

5 a cooling element that can selectively cool said intersection such that said Bragg grating does not couple said wavelength λ_i .

15. The switch of Claim 14 wherein said input waveguide and said output waveguide are substantially perpendicular to each other.

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16. A wavelength-selective switch comprising:

an input waveguide extending over a first direction and carrying an optical signal of wavelength λ_i ;

an output waveguide extending next to said input waveguide;

15 a bridge waveguide switch disposed between said input waveguide and output waveguide, said bridge waveguide having a Bragg grating adapted for coupling said wavelength λ_i ; and

a heater element that can selectively provide thermal energy to said intersection such that said Bragg grating does not couple said wavelength λ_i .

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17. A wavelength-selective switch comprising:

an input waveguide extending over a first direction and carrying an optical signal of wavelength λ_i ;

an output waveguide extending next to said input waveguide;

5 a bridge waveguide switch disposed between said input waveguide and output waveguide, said bridge waveguide having a Bragg grating adapted for coupling said wavelength λ_i ; and

a cooling element that can selectively cool said intersection such that said Bragg grating does not couple said wavelength λ_i .